The smallest of details in the eye provide ophthalmologists with vital information for better diagnosis and treatment. UNC Eye now has valuable new diagnostic, assessment, and communications tools that support patient care services. Some of the instruments enlarge an image of the retina almost 150 times providing microscopic detail for the ophthalmologist to examine. Others provide detail not otherwise visible on the eye examination.

UNC Eye began using advanced software in 2008 that for the first time brings together images and data produced by different instruments. The iViews Imaging System allows UNC Eye physicians to quickly display a patient’s many different images, including views taken at earlier appointments. Previously, physicians primarily had used printouts from each instrument, which meant having to refer to many separate sheets of paper.

Ophthalmology professor Reece Landers, MD, has been among the earliest adopters of iViews. “The iViews system gives us an important capability. It connects easily to essentially any image-generating equipment in ophthalmology departments,” he says. In addition, Odette Houghton, MD, assistant professor of ophthalmology and a vitreoretinal specialist, appreciates the value of conveniently viewing “large, high-resolution images that can be accessed from anywhere via the Internet.”

iViews has been implemented with support from the professional staff of Chace and Associates Technologies, Dunedin, FL. “In the industry today, there are very sophisticated imaging instruments that stand alone. Our software allows the imaging produced by these instruments to be viewed together, converging the information in one location on a viewing screen,” Paul Chace explains.

Chace, whose software is in use throughout North America and overseas, had not been involved with a public teaching hospital before working with UNC Eye. While visiting he heard about statewide budget constraints caused by the lagging economy and the importance of donors to UNC Eye. “I said, “You know, I can do that.’” So I asked what would be most important,” Chace recalls. His gifts have included software, computer equipment, and labor.

He was inspired by UNC’s mission as a public university to care for affluent and indigent patients alike. “I’ve seen their dedication to patients, regardless of their ability to pay,” Chace says. “I decided to pick up some of that slack. We’d get that equipment in there so they can take care of patients.

“They train the doctors who will go out into the world and take care of people. That’s why I like working especially with UNC. They want to do so much.”

Odette Houghton, M.D., views changes in the smallest details of a patient’s retina. These images are converged into one location through iViews, an innovative software that enhances diagnosis and treatment as well as providing a new dimension to medical education. (Images below represent retinal changes due to diabetic edema and macular degeneration.)

continued on page 3
When I started my career in ophthalmology

almost four decades ago, there were no intraocular lens implants, no laser treatments for diabetic retinopathy, no treatment for macular degeneration, no surgeries to remove blood from the vitreous cavity, and no CT scans or MRIs.

We can hardly imagine what it would be like to care for our patients today without these innovations. How did we get here? Research!

The United States has the most robust research environment in the world and the research is centered in the academic health centers such as UNC. At UNC Eye we are proud of the many types of research that we are doing to make the future even better for the care of patients.

Clinical trials are an important final testing ground for ideas that were conceived years before. We are involved in a number of clinical trials where we collaborate with other academic and private centers around the country to test therapies and arrive at the best strategies to save vision. Recently two of our national trials reported important results. The Diabetic Retinopathy Network announced that the standard use of laser photocoagulation is superior to the injection of steroids into the eye, a recent popular technique. In the SCORE study, by contrast, injections of steroids improved the visual outcome of patients with central retinal vein occlusions.

We are currently involved in three studies to prevent and treat age-related macular degeneration (AMD). The AREDS2 study seeks to reduce the number of patients who develop advanced macular degeneration, while the CATT study focuses on arriving at the best treatment strategy for wet AMD. We are about to start another study with GlaxoSmithKline in which we will use eye drops to try to improve the outcomes in AMD.

The laboratory is an important place to develop the ideas that later are tested in the clinical area. Dr. Terete Borras works to lower eye pressure in glaucoma using gene transfer therapy. She has shown that certain genes become more active when the pressure in the eye rises leading to further pressure increases. Two years ago, this work was recognized as the best paper published in glaucoma in the world. Dr. Hartnett focuses on abnormal blood vessel growth in the eye, studying both wet AMD and retinopathy of prematurity which is a devastating eye disease affecting infants. Her work is strongly supported by the National Eye Institute (NEI) which recently awarded almost $500,000 in supplemental funds for equipment for her laboratory. We are fortunate to have recruited Dr. Sai Chavala who is studying ways in which the retina may learn to regenerate itself after injury. This long range project will require years to develop but has tremendous promise for the future.

Drs. Seema Garg and Richard Davis are developing telemedicine techniques to screen for diabetic damage to the eye directly to patients in the office of their primary care provider, by taking photographs which are sent over the internet to UNC Eye. Dr. Davis’ work has actually used telemedicine to teach patients on how to take better care of themselves through televised training sessions and has significant impact on their diabetic control.

The spirit of inquiry is strong in our residents and medical students. Our residents presented research done at UNC in scientific poster sessions at the annual North Carolina/South Carolina Ophthalmology Society Meeting. Residents Graham Lyles mentored by Dr. Ken Cohen and Neda Esmaili mentored by Dr. Amy Fowler won 1st and 3rd place prizes respectively in this competition. In the laboratories, UNC medical student Jessica Watson, supported by the prestigious Doris Duke Student Fellowship, is working on surgical treatments of central retinal vein occlusion. While being mentored by Dr. Maurice Landers, Ms. Watson will hopefully provide more insight into this medical condition and possible treatments.

Future decades of research will offer our patients increased options and improved results and will continue to be a vital part of our commitment to leading, teaching, and caring.

–Travis A. Meredith, MD

The Spirit and Value of Inquiry
New Faculty Spotlight ~ Richard M. Davis, MD

For the past ten years Dr. Richard M. Davis served as Professor and Chair of Ophthalmology at the University of South Carolina School of Medicine, and Ophthalmology Residency Education Director for Palmetto Health Richland Memorial Hospital, Columbia, SC. Fortunately for the Kittner Eye Center and the UNC research community, the Davis family, including wife Dr. Elizabeth Mayer-Davis, PhD, had a unique opportunity to relocate to Chapel Hill. Dr. Davis’s appointment as Professor of Ophthalmology expands the size of the Cornea/Anterior Segment/Refractive Surgery Service to three surgeons. In addition to his clinical and surgical appointment to ophthalmology he has a dual appointment to the North Carolina Translational and Clinical Sciences Institute at UNC. In that capacity he will serve as research navigator to facilitate research for UNC and community scientists. In addition, he will continue his own research including NIH funded community translation research in the area of diabetes education.

Originally from Chicago IL, Dr. Davis received his BA degree in Zoology from Indiana University and attended medical school at the Feinberg School of Medicine at Northwestern University. During his residency program at the University of Chicago, he became interested in research and practice of corneal disease, which led to his fellowship in cornea, external diseases, and refractive surgery at the University of Oklahoma. Dr. Davis returns to North Carolina having served on the ophthalmology faculty at Bowman Gray School of Medicine, Winston-Salem, North Carolina from 1993 to 1999. “I’ve wanted to return to North Carolina for a number of years, and was thrilled when all the puzzle pieces fell together bringing us to Chapel Hill,” said Dr. Davis.

Dr. Davis’s professional accomplishments are numerous, having served on over fifty national and international boards and committees, and has over one hundred book chapters and publications. This breadth of knowledge and experience will enrich the training of the ophthalmology residents and enhance the continued growth of the Department. Dr. Davis’ specialties include laser vision correction, cornea and external disease, cataract surgery, and comprehensive ophthalmology.

Dr. Davis lives in Chapel Hill with his wife along with the youngest two of five children. He notes that the other three grown children are welcome at any time. His wife, Elizabeth Mayer-Davis, PhD is a nationally recognized educator and Professor of Nutrition at UNC. She is the national chairperson for the SEARCH for Diabetes in Youth Study and Principal Investigator for the Carolina site. The Drs. Davis enjoy hiking in the mountains and cooking “gourmet” together. Her signature dish is roast leg of lamb with fresh rosemary and risotto, and his is cheese souflee with asparagus and dill.

Images of Sight continued from page 1

Patients Benefit From New Imaging Instruments

Patients and their doctors can benefit from UNC Eye’s new, leading-edge instruments that provide amazingly detailed, 3-D images of the eye. The instruments use an advanced technology called optical coherence tomography (OCT). OCT images are important in patient care and for clinical trials. The new OCT Visante and OCT Cirrus Instruments help clarify the disease process and the results of treatment. To store and manage the images, new camera equipment has been purchased. The OCT Visante allows for cross-sectional imaging of the anterior part of the eye. The availability of the Visante has improved preoperative planning and postoperative management of new corneal transplant procedures. Importantly, the Visante has improved surgical teaching of the residents by allowing the residents to view and analyze operative incisions and accuracy of intraocular lens placement.

Special thanks to those who made the purchase of this equipment possible. The OCT Cirrus, the digital fundus camera – which images the inner lining of the eye – and its camera back were funded through the generosity of the North Carolina Lions Foundation. Funds for the OCT Visante were provided by Bruce Barron, MD, the Hettinger Foundation, Travis Meredith, MD and Karen Meredith.

Electronic Medical Records Help Physicians Improve Patient Care

Our new iViews software fits in well with the department’s implementation of a state-of-the-art electronic medical records (EMR) system, which converts a patient’s paper chart into computerized records. Having a patient’s records together and immediately accessible helps give physicians the information they need for critical decision-making. It also helps save patients time because it improves efficiency and workflow, making information available to the many different people who care for each patient,” says ophthalmology professor Reece Landers, MD, who has led our EMR efforts.

Our EMR implementation has been accomplished with the kind support of the Lincoln Healthcare Foundation.
Meet Glaucoma Researcher
Maria Grazia Spiga, PhD

Researchers at UNC Eye are helping develop therapies that ultimately could save the sight of certain patients with glaucoma. The solution they seek involves gene therapy, which places a gene into certain eye cells to restore their function. Corneal rims, remaining from donor corneas after corneal transplant surgery, performed by Dr. Craig Fowler and Dr. Kenneth Cohen in the Kittner Eye Center, provide the glaucoma related cells for this promising research. Such collaboration among clinical and research faculty is vital to new discoveries that can lead to improved patient treatments and cures.

Among the challenges of this type of research are finding ways to deliver the right gene to the right cells and then to activate them, explains Maria Grazia Spiga, PhD, a postdoctoral researcher in the laboratory of Terete Borràs, PhD.

"Glaucoma is the leading cause of blindness among African-Americans and Hispanics, and the third leading cause of blindness in the US, so this research is important," Dr. Spiga says. Gene therapy offers new hope for treatment. "Currently, the treatment for glaucoma relies on daily medication or surgery," she observes. "Our alternative is long-term and also is targeted." A treatment that is so targeted it finds and acts only on problem cells and is sometimes called a "magic bullet."

In some cases, glaucoma is also an unavoidable complication for patients who use corticosteroids, anti-inflammatory medicines, for illnesses such as asthma or rheumatic disease. These patients can develop high pressure inside their eyes – elevated intraocular pressure – which is the major risk factor for glaucoma.

Dr. Spiga’s excitement over this research, and her field of inquiry, is easy to see. As a young child in her native Italy, she had five or six surgeries to correct strabismus, a common condition in which the eyes are not aligned correctly. "When I was little, I wanted to be an ophthalmologist," she recalls. Her path led instead to a doctorate in biochemistry and molecular biology and to research in gene therapy. In her position at UNC Eye, her two interests have come together.

Where Are We Now?

Many of our patients and friends of the UNC Eye Center may not know that we are not just located on the campus of the UNC Health Care System at The Kittner Eye Center. We have expanded our outreach to other communities in the State. Our mission is to serve all who need us including patients, our referring ophthalmologists, optometrists and other MD professionals. As a result, UNC Eye currently provides world class ophthalmologic care, with our special home town touch, at seven different practice sites in the State of North Carolina.

We opened our first expanded off-site clinical practice nearly 15 years ago. Since that time, UNC Eye has significantly expanded faculty, staff and services and expects to be located in a total of seven clinical sites by early 2010. Many of our locations offer specific subspecialty care such as retina or ocu-plastic work that is not available in that community. If we are invited in by our referring providers, we do our best to accommodate the needs of their communities. We recently opened practices in areas where no surgical ophthalmologist was available.

At UNC Eye we are proud of our tradition of putting patient needs first. It is our way of life.

UNC EYE’S CURRENT LOCATIONS

The UNC Kittner Eye Center
Chapel Hill, NC
UNC NC Lions Diabetic Eye Care Center
Durham, NC
Tarboro Clinic, PA
Tarboro, NC
Watson Eye
Rocky Mount, NC
UNC Eye Center at New Bern
(target completion Dec 2010)
New Bern, NC
UNC Eye at Siler City
Siler City, NC
Alamance Eye Center
Burlington, NC

For more information on our clinical sites and services offered, please contact our Administrative Offices by calling:
919-966-5296.

A Quote from our first UNC Eye Ambassador
Ralph Hester,
UNC Class of ‘68

"My mother was a very kind, caring lady and was always trying to help others; therefore, I honestly believe I received my love and consideration for others from my mother. My concern for the visually impaired I guess started when it was determined I was almost blind in my right eye when I started to grammar school. With my vision improving over the years, and when I joined the local Lions Club and was exposed to more visually impaired people, it made me realize how fortunate I am to be able to see. Therefore, I wanted to do all I can, and I wanted to encourage the Lions across North Carolina to do all they can to reduce the risk of blindness in our population. I felt the best way to do that was to support the Department of Ophthalmology at UNC-Chapel Hill in its battle against blindness."
New Faculty Spotlight ~ Sai H. Chavala, MD

After completing a fellowship in vitreoretinal surgery at Duke University Eye Center, Sai H. Chavala, MD was appointed Assistant Professor at the Kittner Eye Center. He has a dual appointment to both the Vitreoretinal Service and the research division of the Ophthalmology Department at UNC. Dr. Chavala brings a rare set of skills and education to the Department. In addition to being fellowship trained in clinical and surgical treatment of diseases of the retina he completed a formal two-year post-doctoral research fellowship, studying stem cells and angiogenesis. Said Dr. Chavala, “My passion for discovering cures for retinal disease through research is a natural compliment to my ability to manage, both clinically and surgically, some of those same diseases.”

Dr. Chavala’s research fellowship was completed at Howard Hughes Medical Institute, Cornell University, with mentors Shahin Rafii, MD and Thomas C. Lee, MD. This followed his ophthalmology residency at Cole Eye Institute, Cleveland Clinic Foundation in 2005, and medical school at the University of Missouri-Kansas City in 2001.

Currently, his area of research is studying serum biomarkers and vascular progenitor cells for age-related macular degeneration. Previous work in angiogenesis yielded two patents for techniques used to treat macular degeneration. His extensive efforts have already yielded a book chapter, entitled “Hereditary/congenital choriodetinal disorders” in Retinal Imaging, as well as thirty three publications and presentations. UNC has awarded him a Clinical Translational Science Award (K12 Scholars Program) so he can devote 75% of his time to research. The remainder of his time will be spent seeing patients at the Kittner Eye Center at UNC or one of the Ophthalmology satellite clinics. Dr. Chavala recently completed missionary work in southern India restoring vision for the underprivileged. He and his wife enjoy traveling and hiking together.

Big Hearted Lions Help Thousands with Gifts

At the April 30-May 3, 2009 North Carolina Lions State Convention in Raleigh, over 400 hundred members of various statewide Lions Clubs gathered to learn more about their mission and work to serve the visually impaired in North Carolina. During the meeting, Travis A. Meredith, MD, Chairman of the Department of Ophthalmology, at UNC School of Medicine, at the University of North Carolina, Chapel Hill, shared the university’s appreciation for the generous $196,000 gift provided by the NC Lions Foundation that allowed the department to purchase three pieces of equipment to diagnose and treat many people from the youngest newborns to our oldest patients. The three pieces of equipment are a Cirrus Optical Coherence Tomography unit (shown in top left photo), a Digital Fundus Camera and partial funding for a RetCam used in the diagnosis and treatment of prematurely born infants.

Other donors to the RetCam included the AE Finley Foundation and Prevent Blindness North Carolina.
Grateful Patient’s Family Shares Thanks through Daughter’s Challenge

In a recent interview, Michelle Higbee shared her heartfelt appreciation to Dr. Odette Houghton whose care for her daughter, Riley, has left a lasting impression on the family.

Last year as Riley, 15, began her sophomore year at high school, she came down with a serious eye disease. Physicians found her retina was inflamed due to an infection that has now led to the loss of most of the sight in her left eye. Since Riley’s arrival in her office on that first visit, Dr. Houghton has worked tirelessly to determine the cause and has kept in close contact with the family as she has researched any and all possible treatments. Dr. Houghton has presented Riley’s case before many conferences, but it remains a rare, mysterious, and unnamed disease.

In the Words of Michelle Higbee, mother of Riley

“Through the whole thing, there were many calls as problems came up. Dr. Houghton would call me, or I’d get an email from her at 11 o’clock at night, just checking in. It’s very rare that you find that kind of bedside manner or concern in a doctor.”

Mrs. Higbee said she was impressed as well with “the staff in the office. We got teased that we should have our own suite there. They’re just all very nice and very attentive. I think it makes Riley feel good when she goes in that they all know her. She has received a lot of attention and a lot of care.”

Alumni Reflections

Jon P. Brisley, MD completed his residency in 1982. After moving to Roanoke, Virginia, he helped found Vistar, now among one of the largest private practices in the state. His wife, Amy, also a Carolina graduate, joins him in giving back to UNC and to their community through mission trips and the local church.

“I enjoyed my time at Carolina. You learn the value of teamwork, the value of working hard, and also that hard work pays off. More importantly, the attendings stressed that the patients come first. That’s a lesson you don’t forget.”

Kenneth B. Simons, MD completed his residency in 1984 and is grateful for the person who recommended him to the Medical College of Wisconsin, where he serves as senior associate dean for academic affairs, in charge of 800 students. Simons has provided generous gifts of support in honor of Dr. David Eifrig in appreciation of his leadership as Chairman during Simon’s years of residency.

“I wouldn’t be where I am were it not for Carolina and the people I met and worked with. There was just a great team of people. You can’t do it by yourself. I learned that at Carolina. We learned everybody was important, and the goal was to take care of patients in the best possible way.”
Why do you support UNC Eye and its Kittner Eye Center as an Ambassador?

“UNC Ophthalmology saved my sight. Twice. Several years ago, I experienced several retinal tears and then a detached retina. Later I experienced similar problems in my other eye. I still remember my first visit to UNC Ophthalmology. I had no idea what was wrong with my eye or the seriousness of the problem, but I was worried. Although the staff deal with many patients every day, they sensed I was worried and took the time to explain to me what they were doing and why. At the time, I thought that this was because I was a new patient in need of education about a health problem. But in the many visits since the first, I have always had the same experience – skilled medical care, clear information, and an empathetic attitude.

As a university professor, I am impressed by the research and teaching at UNC Ophthalmology, and the academic reputation of the ophthalmologists and clinical staff. When seeking information about my eye problems, I frequently encounter articles in top-rated journals by UNC Ophthalmology medical staff. As a patient, I am impressed by the clinical care I have received, the respect for patients and the dedication of all of the staff. I consider myself very fortunate to be a patient of UNC Ophthalmology and a recipient of the finest eye care.”

Describe your work at UNC.

“I am a teacher and researcher in the School of Public Health at the University of North Carolina at Chapel Hill. The courses I teach help graduate students to become better managers of health care organizations. The national research projects I direct help to improve the management of hospitals that serve rural communities in North Carolina and all other states.”

Dr. Pink teaches graduate courses in healthcare finance and is involved in several research projects, including the Rural Health Research Grant Program and the Rural Hospital Flexibility Program Evaluation, both funded by the federal Office of Rural Health Policy.

New Faculty Spotlight ~ David A. Chesnutt, MD

David A. Chesnutt, MD, brings a unique combination of skills to the UNC Department of Ophthalmology, and the Department is delighted to welcome him to the fold. Dr. Chesnutt is a native North Carolinian who grew up in the small rural Eastern North Carolina town of Turkey. “My family always encouraged me to do my best and to respect others. Regardless of what task was at hand, a strong work ethic and a positive approach were at the forefront. I am very thankful for the support and encouragement that my family has always given me.”

After completing his medical school and ophthalmology residency at UNC and a fellowship in neuro-ophthalmology at the Duke University Eye Center, Dr. Chesnutt joined the Duke faculty. In this position, Dr. Chesnutt treated adult patients with double vision and other eye movement problems and actively contributed to the surgical and clinical training of the residents at Duke and treated patients at the Durham Veterans Administration Hospital.

Dr. Chesnutt received additional training in oculoplastic and orbital surgery at the Medical University of South Carolina at Charleston. He practiced in his hometown area for a little over 2 years prior to joining the UNC faculty. “I returned to my hometown because the area is vastly underserved in all aspects of medical care, including ophthalmology. I hope to continue working closely with doctors in my hometown now that I am on the UNC faculty. The UNC mission is to serve the people of our State," says Chesnutt. "I enjoy speaking across the state and providing continuing medical education for our doctors. I am dedicated to improving the health of our citizens, and as a native of North Carolina and an alumnus of the Department of Ophthalmology, I am grateful and excited to have the opportunity to do so." At UNC Dr. Chesnutt continues to treat adult patients with double vision and acquired eye movement problems and has a special interest in thyroid eye disease, or TED. His current research focus involves developing a new classification system for patients with TED which hopefully will allow clinicians to identify high risk patients earlier so as to hopefully improve treatment outcomes. “I feel very fortunate to have a number of mentors in the Medical School and in the School of Public Health to guide me and collaborate with me in this ongoing project.”
World Sight Day (WSD) is an international day of awareness, held annually on the second Thursday of October to focus attention on the global issue of avoidable blindness and visual impairment. This year’s World Sight Day on October 8 kicked-off a year long effort focused on “Gender and Eye Health - Equal Access to Care” with the goals:

• to RAISE AWARENESS that 2/3 of the blind and visually impaired are women and that 3/4 of all blindness is preventable or treatable;
• to COLLECT DATA to better understand and address the disparity that exists also in the US;
• to EDUCE because women are often caregivers for children and elderly and by increasing education to women we are addressing the population as a whole.

What Should You Do To Maintain Good Eye Health?

• See your eye doctor regularly.
• Don’t smoke. (Smoking increases risk of cataracts and age-related macular degeneration).
• Maintain a healthy body mass index.
• Protect your eyes to prevent ocular trauma.
• Be aware of warning signs that could indicate an eye problem: light flashes, floaters, distorted vision, shades over peripheral vision, pain, discharge.